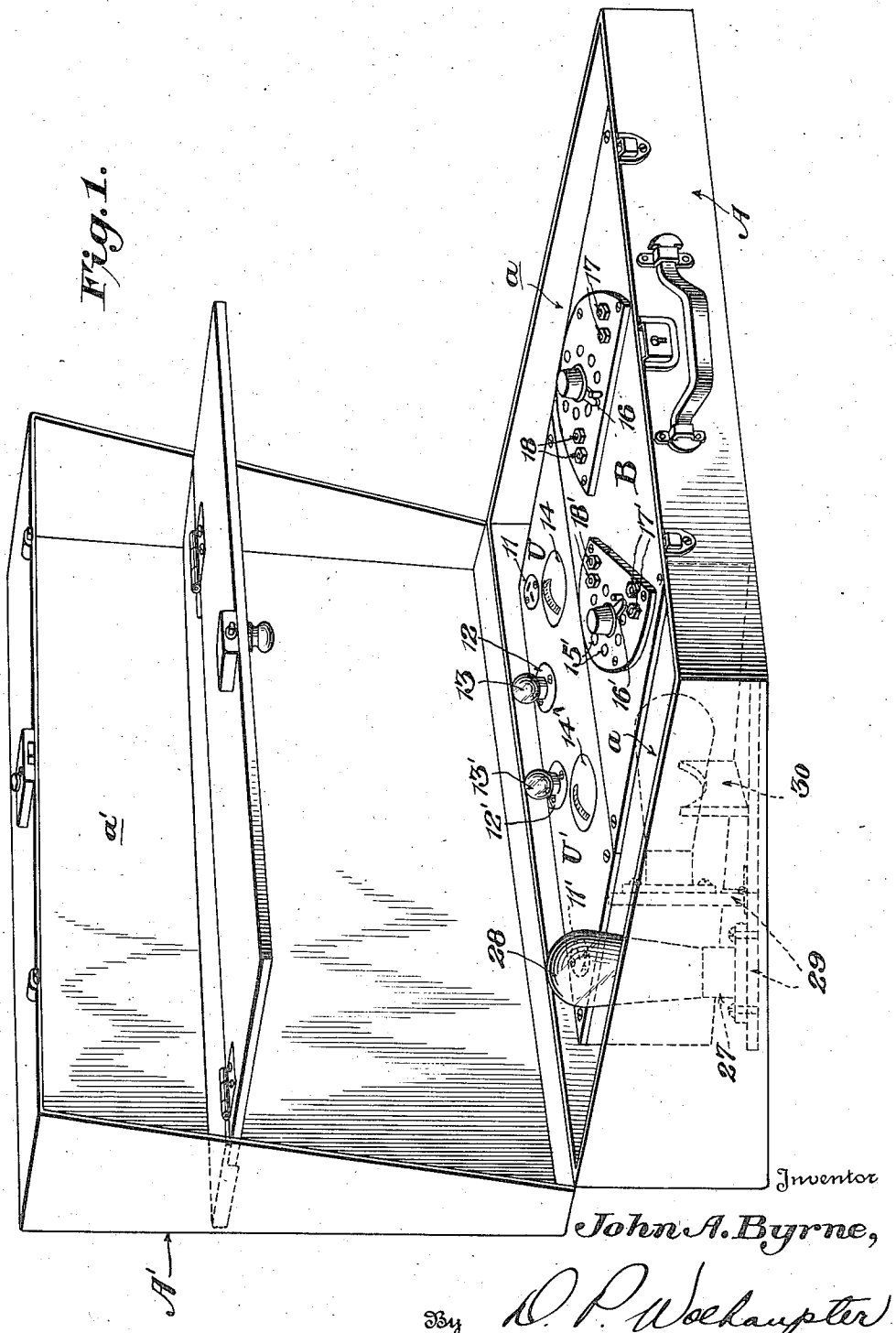
Dec. 17, 1935. J. A. BYRNE 2,024,624

DEPILATORY METHOD AND APPARATUS

Filed July 7, 1932 4 Sheets-Sheet 1

Fig. 1.



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DEPILATORY METHOD AND APPARATUS

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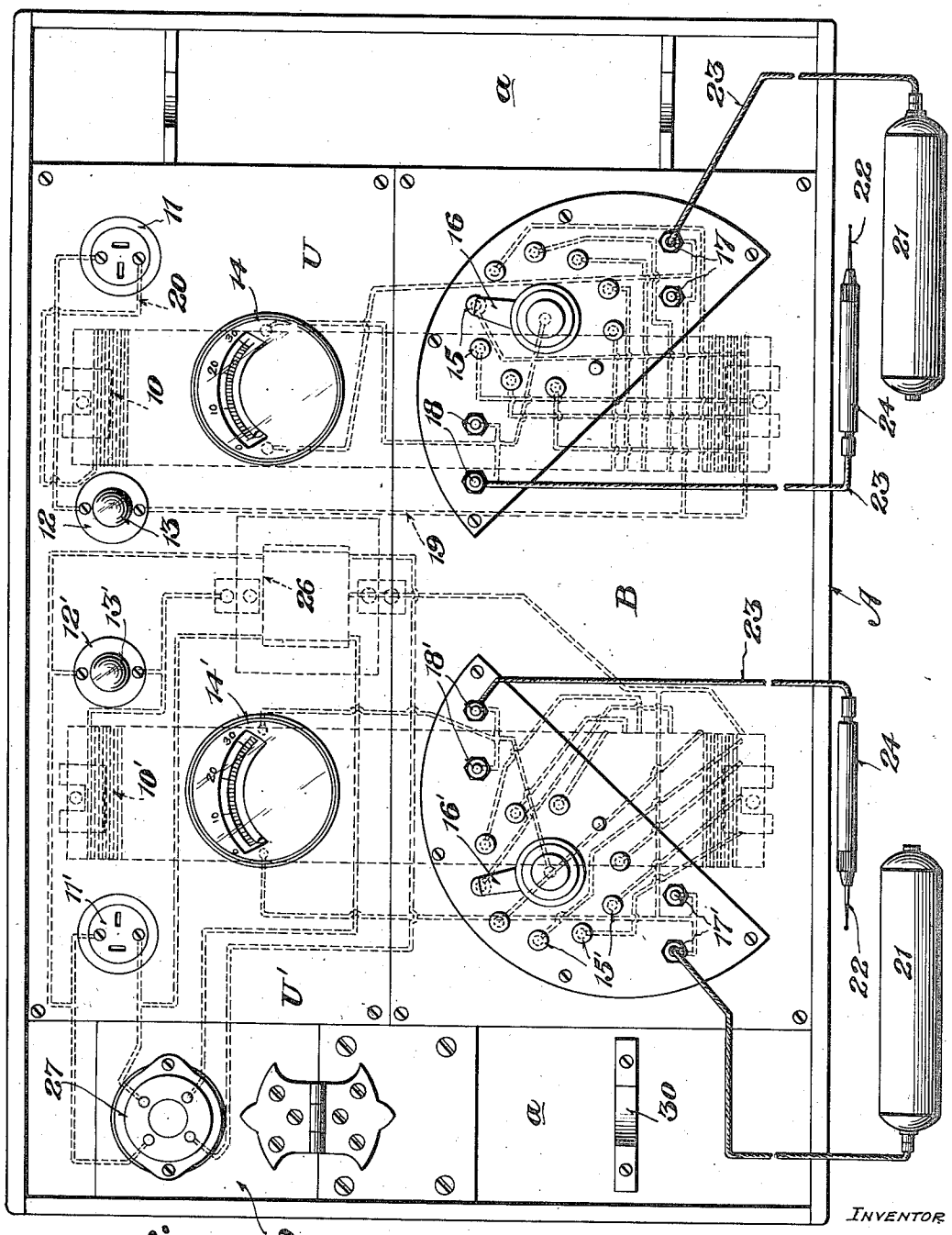


Fig. 2.

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DEPILATORY METHOD AND APPARATUS

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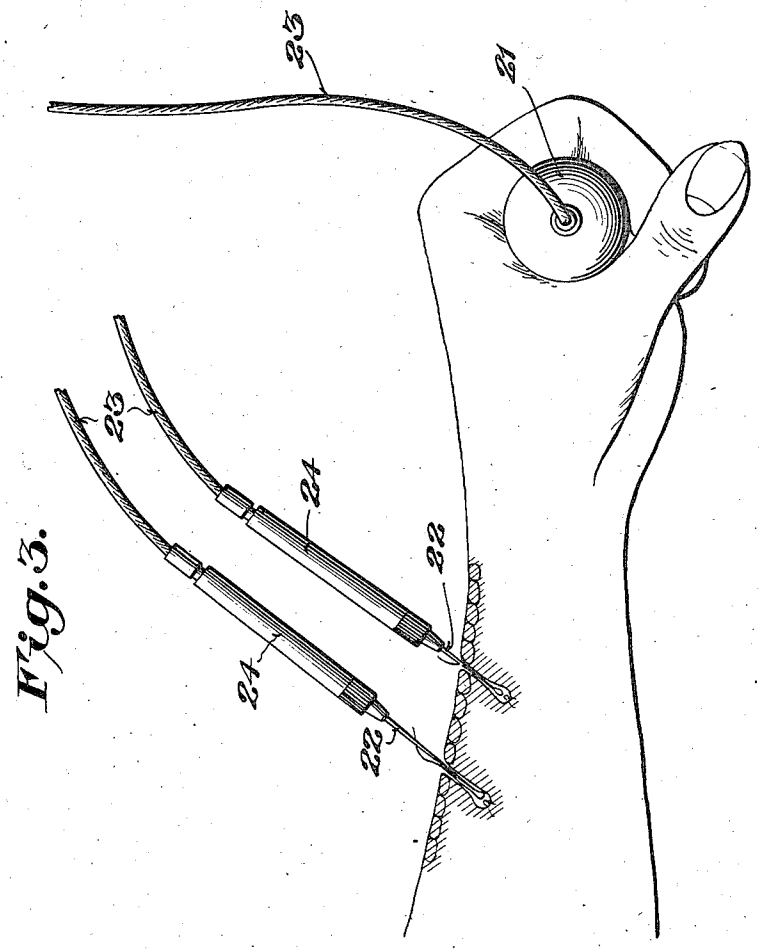


Fig. 3.

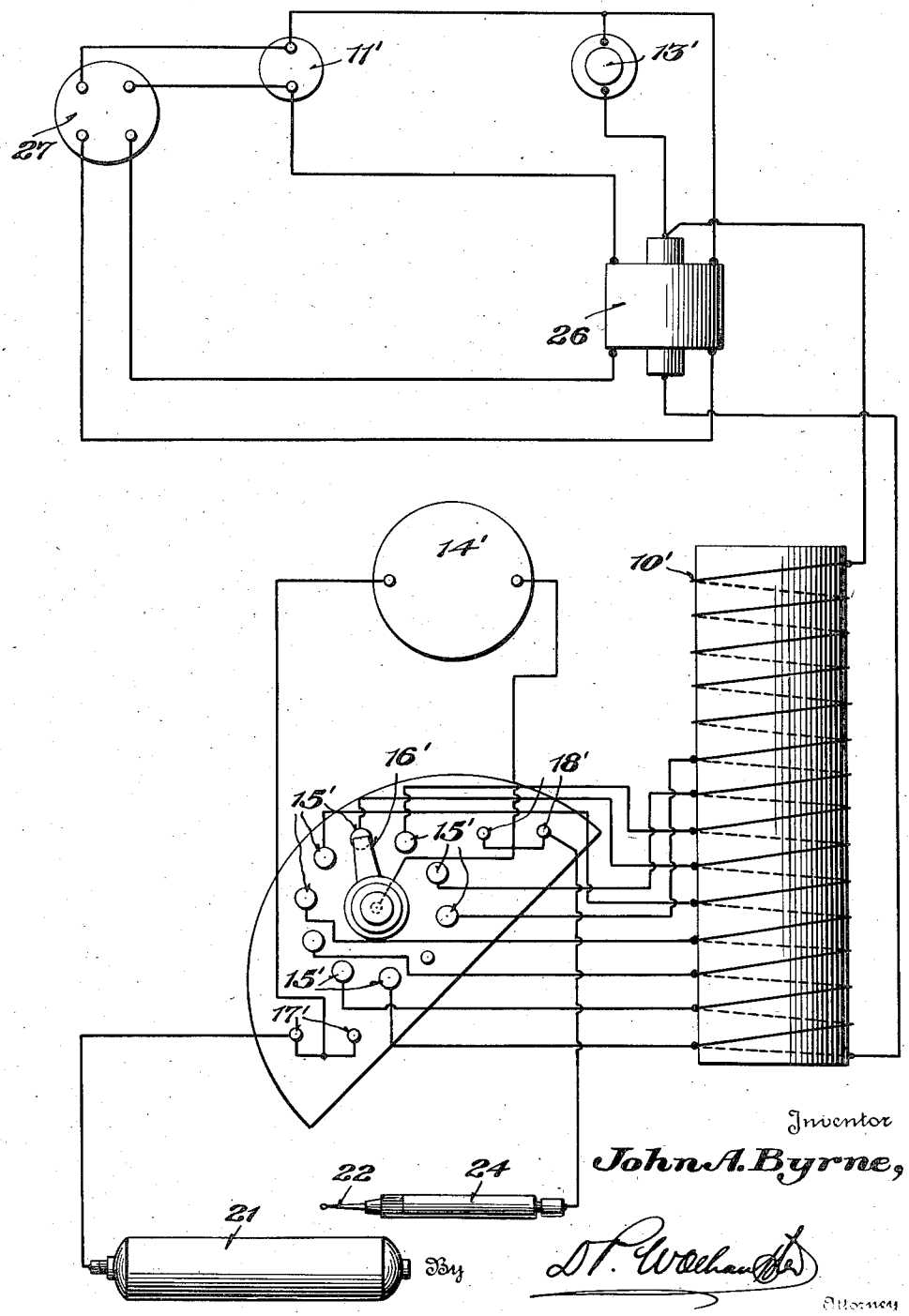
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DEPILATORY METHOD AND APPARATUS

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Fig. 4.



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UNITED STATES PATENT OFFICE

2,024,624

DEPILATORY METHOD AND APPARATUS

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Application July 7, 1932, Serial No. 621,285

2 Claims. (Cl. 174—177)

This invention relates to a novel method of destroying existing hairs and preventing their future growth, and to a novel apparatus for use in practicing the method, and has generally in view to provide a hair and hair growth destroying method and apparatus, the former of which may be practiced rapidly and easily substantially without pain to the patient, and the latter of which is of relatively simple, inexpensive and durable construction and which, at the same time, is thoroughly reliable and efficient in use.

Hairs extend through individual tubes in the skin known as follicle, and at their inner or root ends have tenacles, known as papilla, which extend into the sensitive skin structure and which serve to gather the necessary nutriment to sustain the growth of the hairs. Thus, in order to effectively destroy the growth of a hair it obviously is necessary to destroy its papilla. Accordingly, a special object of the invention is to provide a novel method and apparatus whereby this may be accomplished in a positive and expeditious manner.

In accordance with the invention, hair papilla is destroyed by the chemical action of skin secretions resulting from subjecting said secretions to the action of an electric current, and in this connection another object of the invention is to provide, as part of the apparatus, a special electrode needle for insertion into the hair follicle in order that the electrical discharge may be caused to take place at the most effective point; viz., at the root of the hair where the papilla extend therefrom.

Another object of the invention is to provide a simple, compact apparatus by means of which ordinary lighting current may be employed to furnish the necessary small current for practicing the method, and to provide for increasing or decreasing the value of the small current within practicable limits to obtain the best results in particular instances.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel method and in the novel features of construction, combination and arrangement of elements in the apparatus, as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different views:—

Figure 1 is a perspective view of an apparatus constructed in accordance with one practical embodiment of the invention for use in practicing the method.

Figure 2 is a plan view of the apparatus; and

Figure 3 is a diagrammatic view illustrating the manner of using the apparatus.

Figure 4 is a diagrammatic view illustrating the circuits involved.

Referring to the drawings in detail, it will be observed that the complete apparatus is arranged compactly within a carrying case A of suitable size and shape having a hinged lid A' which, when opened, as shown in Fig. 1, exposes the apparatus for use.

The apparatus comprises two separate units, one for the use of D. C. current and the other for the use of A. C. current in practicing the method, and, as best shown in Fig. 2, these units, designated generally as U, U', respectively, are mainly contained within a common protective housing B disposed within the case A, said housing B being of somewhat less length than the case A to provide compartments *a*, *a* between the ends of the case and the housing. Within the lid A' may be provided one or more compartments *a'* to contain instruments or other paraphernalia.

Referring particularly to Figs. 1 and 2, it will be observed that the D. C. current unit of the apparatus comprises a suitably constructed resistance coil 10, a plug socket 11, preferably of the polarized type, a socket 12 for a pilot lamp 13, a milliammeter 14, a rheostat switch inclusive of spaced contacts 15 and a cooperating switch arm 16, and pairs of outlet plug sockets 17, 17 and 18, 18 the current flow to which is under the control of the rheostat switch.

The resistance coil 10 is suitably mounted within the housing B and said housing also contains the various wires or connections between the aforesaid elements of the D. C. current unit. On the other hand, the plug and lamp sockets 11, 12, the outlet sockets 17, 18, the milliammeter 14 and the switch arm 16 either are mounted on or exposed through the top of the housing B for convenient use. Obviously the switch contacts 15 may be disposed either beneath or above the top of the housing B.

Conductors 19 and 20 connect the terminals of the plug socket 11 with the ends of the resistance coil 10 whereby a current of suitable small value is obtained when said plug socket is connected, as, for example, by means of an extension cord, with an ordinary lighting current outlet fixture, and the lamp socket 12 is placed

in one of said conductors so that an associated lamp serves when lighted to indicate a closed condition of the circuit.

The contacts **15** are connected with the coil **10** at points suitably spaced along the length thereof and suitable connections are provided between the switch arm **16**, and the outlet plug sockets **17**, **18** and the milliammeter **14**, whereby said outlet plug sockets and the milliammeter are included in the small value current circuit under the control of the regulating switch **15—16**. Thus, the value of the current flow to the outlet plug sockets **17**, **18** may be varied within predetermined limits, and for any adjustment of the switch arm relative to the contacts **15** the value of the current is indicated by the milliammeter **14**.

The outlet plug sockets **17**, **17** and **18**, **18** provide for including electrode devices **21**, **22** in circuit with the variable low value current, inasmuch as said electrode devices are provided with extension cords **23** having plugs for insertion into said plug sockets.

The electrode device **21** is of any suitable construction to complete a circuit through the body of a patient by being held in the hand of the patient or in any other suitable manner. On the other hand, the electrode device **22** is in the form of a special needle removably carried by a suitable holder **24**, said needle being of relatively small diameter for insertion into the hair follicle and preferably having a small ball point to avoid injury to the follicle when inserted therein.

The manner of using the apparatus is illustrated in Fig. 3, from which figure it will be observed that the electrode device **21** is held in the hand of the patient and that the needle electrode **22** is inserted within a follicle *f*. By means of the switch arm **16** the small value current is suitably regulated and the circuit is completed between the electrodes **21**, **22** through the body of the patient. The current passing through the body causes secretions of the skin containing body minerals to undergo a papilla destroying chemical change, producing alkaline caustic or hydrogen gas, particularly in the vicinity of the electrical discharge from the ball point of the needle electrode **26** and in this way the papilla is permanently destroyed, thereby permanently destroying the existing hair and preventing its future growth.

The plural outlet plug socks **17**, **18** obviously provide for the simultaneous use of plural electrodes while the compartment *a* adjacent to the D. C. current unit is provided to accommodate the electrodes when they are not in use.

While neither the pilot lamp **13** nor the milliammeter **14** is essential the former preferably is provided to afford a clear visual indication of a closed circuit condition through the coil **10** and the latter preferably is provided to afford an accurate indication of the value of the current flow to the electrodes **21**, **22** for any given adjustment of the switch arm **16**.

Referring now to the A. C. current unit U' of the apparatus, it will be observed that this unit is quite similar to the D. C. current unit and includes a resistance coil **10'**, a plug receptacle **11'**, a socket **12'** for a pilot lamp **13'**, a milliammeter **14'**, a rheostat switch inclusive of spaced contacts **15'** and a cooperating switch arm **16'**, and pairs of outlet plug sockets **17'**, **17'** and **18'**, **18'**, respectively. In addition, said unit includes a transformer **26** and a socket **27** for a rectifier tube **28**.

As in the case of the various housed and exposed parts of the D. C. current unit, the corresponding parts of the A. C. current unit are housed and exposed, respectively, and their general arrangement is or may be approximately the same as the arrangement of the D. C. current unit parts. However, in this connection a special feature of the apparatus resides in the mounting of the rectifier socket **27** on a base **29** which is hinged to the bottom of the case A within the second of the aforesaid compartments *a* so that said socket, with a rectifier tube therein, may be swung either to an upright operative position, as illustrated by full lines in Fig. 1, or to a collapsed or inoperative position as illustrated by dotted lines in said figure, a suitable support **30** preferably being provided within said compartment *a* to accommodate the rectifier tube and to hold the same against undesirable movement when it is swung to a collapsed or out of the way position.

Without describing in detail the various connections between the mechanical elements of the A. C. current unit, which connections are or may be conventional, it may be stated that the transformer and the rectifier tube operate, respectively, to reduce the value of ordinary A. C. lighting current and to change the same to D. C. current for supply to the coil **10'**, and that, as regards the supply of low value D. C. current to the outlet plug sockets **17**, **18**, this is or may be the same as described in connection with the D. C. unit U; also, that the method of using the A. C. unit of the apparatus is or may be the same as described in connection with the D. C. unit, in which connection the preferred practice is to employ initially a current of very small value and to gradually increase its value until the desired destructive chemical action has been produced.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:—

1. A portable depilatory apparatus comprising in combination, a casing, a panel for the casing, a rheostat device mounted on the panel and including a plurality of fixed contacts and a movable center contact and also having sockets adapted to receive the terminals of electrode devices, a milliammeter mounted on the panel and having circuit connections respectively with the center contact of the rheostat and both of the electrode sockets, a resistance coil beneath the panel and having a plurality of lead-off wires connecting with the fixed contacts of the rheostat device whereby current from the coil will pass from the fixed contacts through the movable contact and hence through the milliammeter to the electrode sockets, a plug receptacle on the panel for receiving connection with an alternating current line, a rectifier tube hingedly mounted at one side of the panel and having flexible circuit connections with the plug receptacle, a transformer beneath the panel and having electrical connections with the plug receptacle and rectifier tube, said transformer also having output connections with the coil, and a pilot receptacle mounted on the panel and electrically connected in parallel with one of the leads from the transformer to the plug receptacle

and with one of the output leads from the transformer to the coil.

2. A portable apparatus for use in destroying hair and hair growth comprising a casing closed at its front and back and at its bottom and ends and having a hinged cover, a housing within said casing containing electrical depilatory apparatus, said housing being spaced at one end at least from the adjacent end of the casing to provide a compartment, a current rectifier tube constituting part of the electrical apparatus, and a hinged support for mounting said rectifier tube for swinging movement between an operative upright position and an inoperative substantially horizontal position and a support provided within said compartment to receive the tube and to hold the same against movement when the tube is in a folded inoperative position.

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